SELECTION WITHIN BURT OATS

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Burt oats are widely adapted and extensively grown, especially in the more southern part of the United States. This variety has long been recognized as rather variable in many of its characteristics. Due largely to its reddish color, it has not proved as popular as white or yellow sorts where these are adapted. Burt oats have been grown at the Nebraska Agricultural Experiment Station since 1905 and as an average of 25 years have exceeded the more popular Kherson variety by 4 bushels per acre.

Due to its high yield and likelihood of containing disease-resistant strains, selection was undertaken within the Burt variety at the Nebraska Station in 1920. Because of the commercial advantages of light grain color, primary interest was attached to the feasibility of isolating productive light-colored strains. Seeds classified according to color were space planted to form the initial nursery. The seed from 735 of the most promising and productive plants was close drilled in 8-foot rows in 1921. Elimination on the basis of inferior yield and unattractive vegetative development proceeded during 1921 and 1922 with the result that only 150 strains were advanced to the replicated five-row block nursery in 1923. Sixty-four of these strains were grown during the 5-year period, 1923-27, in five-row blocks, replicated from 4 to 10 times. The number was further reduced to 35 in 1928.

CLASSIFICATION OF SELECTIONS AS TO GRAIN COLOR

A record of the color of the grain produced by the various selections was maintained throughout the period grown, as well as the color of the initial seeds planted. The color classification of the progenies was based largely on the mass appearance of the grain. Color expression among these strains was found to be affected materially by environmental conditions.

The seeds producing the 735 mother plants may be grouped as follows: 43% white, 28% light yellow, and 29% red to black. When classified according to the grain color of the mother plants and their immediate progeny, 4% of the 735 selections were found to be white, 30% yellow, and 66% colored. The term "colored" will be understood herein to apply to any color other than white or yellow. In a large number of instances the strains originally classed as white or yellow were subsequently observed to show color. There was a much greater tendency for the dark seeds to reproduce their color than for the light seeds.

With respect to the 64 strains tested during 7 years, only 4 were classed as white to yellow throughout the period and 15 ranged from

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